

## Installing composite components in yachts and boats

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### Overview

This standard identifies the competences you need to install composite components and assemblies in yachts or boats, in accordance with approved procedures. You will be required to select the appropriate tools and equipment to use, based on the operations to be performed and the components or assemblies to be installed. The items to be installed will include fairings, air intakes, hatches, steering equipment, rudders, skegs, tanks, casings and coverings, radar/navigational domes, davits and internal fitments such as vanity units, consoles, seating and shower units. The size, shape and complexity of the components and assemblies to be installed will vary and it is anticipated that some parts will be trial-assembled prior to the installation taking place.

You will be required to select the appropriate or specified fixing methods and devices for the composite components and assemblies to be installed and the materials to which the structures are being fastened. You will also be expected to create or follow all necessary datums that are required to locate the components and assemblies correctly during the installation activities. The installation activities will include making all necessary checks and adjustments to ensure that composite components and assemblies are correctly positioned and aligned and where appropriate, that they function correctly.

Your responsibilities will require you to comply with organisational policy and procedures for the composite installation activities undertaken and to report any problems with the activities, components or equipment that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to ensure that all tools, equipment and materials used in the installation activities are correctly accounted for on completion of the activities and to complete all necessary job/task documentation accurately and legibly. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out. \* \*

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to applying appropriate installation techniques and procedures to yacht or boat composite components. You will understand the components and assemblies being installed and will know about the relevant fastening and securing devices, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the final installation is to the required specification.

You will understand the safety precautions required when carrying out the installation operations, especially when working in confined spaces and when using adhesives and sealing materials. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace, both ashore and afloat.

## Installing composite components in yachts and boats

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### Performance criteria

#### You must be able to:

1. work safely at all times, complying with health and safety legislation, regulations, directives and other relevant guidelines
2. follow all relevant drawings and specifications for the installation being carried out
3. use the correct tools and equipment for the installation operations and check that they are in a safe and usable condition
4. install, position and secure the equipment and components in accordance with the specification
5. ensure that all necessary connections to the equipment are complete
6. deal promptly and effectively with problems within your control and report those that cannot be solved
7. check that the installation is complete and that all components are free from damage
8. complete relevant documentation in line with organisational procedures

## Installing composite components in yachts and boats

## Knowledge and understanding

## You need to know and understand:

1. the specific safety practices and procedures that you need to observe when installing yacht or boat composite components and assemblies (including any specific legislation, regulations/codes of practice for the activities, equipment or materials)
2. the health and safety requirements of the work area where you are carrying out the installation activities and the responsibility they place on you
3. how to recognise and deal with emergencies and the procedures to be followed (such as methods of safely evacuating and closing down of compartments in the case of fire or other major incident, first aid, fire fighting and resuscitation of personnel)
4. the hazards associated with installing yacht or boat composite components and assemblies and with the tools and equipment used and how they can be minimised.
5. the specific workshop environmental conditions that must be observed when installing yacht or boat composite components (such as temperature, humidity, styrene levels to threshold limits, fume/dust extraction systems and equipment)
6. the protective equipment (PPE) that you need to use, for personal protection, protection of other people in the near vicinity and protection of the vessel/craft
7. how to obtain the necessary job instructions, installation drawings or installation specifications required for the work being carried out
8. how to carry out currency/issue checks of the specifications you are working with
9. the terminology used for the composite sub-assemblies; how to recognise the sub-assemblies and components; and how to interpret the labelling
10. the tools and equipment used in the installation activities and how to check that they are in a safe, tested and usable condition
11. the need to check that all plugs, sockets and cables on extension leads are in a safe, tested and undamaged condition
12. how to prepare the vessel/craft structure and sub-assemblies and the levelling, setting out and marking techniques used for this
13. the methods and equipment to be used for lifting, handling, supporting and manoeuvring the sub-assemblies into their correct positions during the installation activities
14. the techniques used to position, align, adjust and secure the components to the required surfaces without causing damage to the vessel/craft structure or surrounding areas

## Installing composite components in yachts and boats

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15. the importance of positional accuracy
16. the various types of fixing devices that are used to secure the structures to the required surfaces (including screws, cavity fixing devices, adhesives, threaded fasteners and rivets)
17. the importance of using the correct fasteners for the particular installation
18. procedures for obtaining the correct type of tools, equipment, components and fasteners for the activities
19. the use of sealants and adhesives and the precautions to be taken when using them
20. how to conduct any necessary checks to ensure the integrity, functionality, accuracy and quality of the installation
21. how to recognise installation defects (such as misalignment, ineffective fasteners and damage or contamination)
22. the problems that can occur with the installation operations and how these can be overcome
23. the standards to be attained and the company/customer quality control procedures
24. the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve

## Installing composite components in yachts and boats

## Scope/range related to performance criteria

1. Carry out **all** of the following during the installation of the yacht or boat composite components and assemblies:
  1. obtain and use appropriate installation drawings, instructions, sketches or specifications
  2. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
  3. check that all tools and equipment used during the installation are in a safe and usable condition
  4. ensure that the work area is free from hazards and that there is sufficient room to complete the installation
  5. check and return all tools and equipment to the correct location on completion of the activities
  6. leave the work area in a safe condition and to the prescribed category of cleanliness

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2. Install **five** of the following types of yacht or boat composite components and assemblies:
  1. consoles
  2. rudders
  3. air intakes/vents
  4. fairings
  5. hatches
  6. casings and covers
  7. shower units
  8. vanity units
  9. steering equipment (such as wheel, tiller)
  10. skegs
  11. tanks
  12. radar/navigational domes
  13. seats
  14. other specific components

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3. Use a range of tools and equipment during the installation, to include **five** of the following:
  1. hand tools

Installing composite components in yachts and boats

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2. power tools
3. measuring equipment
4. levelling and alignment equipment
5. clamps/cramps
6. lifting and handling equipment
7. temporary fixing/supporting equipment

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4. Prepare the craft to receive the subassemblies, to include carrying out **both** of the following:

1. levelling
2. determining sub-assembly datums

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5. Apply installation methods and techniques, to include **five** of the following:

1. positioning and aligning
2. levelling
3. applying sealants
4. applying adhesives
5. drilling and securing
6. bonding
7. laminating
8. filleting and fairing

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6. Use **three** of the following types of securing methods:

1. screws
2. adhesives
3. cavity fixing devices
4. threaded fasteners
5. rivets
6. special purpose or quick-release fasteners

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7. Install yacht or boat composite components which comply with **one** of the following:

1. BS or ISO standards and procedures
2. customer (contractual) standards and requirements
3. company standards and procedures

## Installing composite components in yachts and boats

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4. specific equipment requirements/mmanufacturer's data
5. recognised compliance agency/body's standards (such as  
Lloyds, Boat Safety Scheme, BMEA Code)
6. other accepted international standards

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8. Complete the relevant documentation in line with  
organisational procedures, to include **one** of the following and pass it  
to the appropriate people:

1. installation record
2. acceptance documentation
3. work authorisation documents
4. job cards
5. time sheets
6. craft/vessel log
7. other specific recording method

## Behaviours

### **Behaviours:**

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment



## Installing composite components in yachts and boats

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